

**AMENDMENTS TO THE CLAIMS:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**LISTING OF CLAIMS:**

1. -3. (Cancelled)

4. (Previously Presented) A method of preparing a polymer composition essentially formed by a polymer based on titanium oxide, which is represented by the formula  $\text{TiO}_x(\text{OH})_y(\text{H}_2\text{O})_z$  in which  $x+y+z = 3$ , in the form of a gel or in the form of a sol, wherein: the polymer comprises fibers wound concentrically with a periodicity, deduced from the space in between the fibers, of between 3.5 Å and 4 Å; each fiber is made up of  $\text{TiO}_6$  octahedra; each  $\text{TiO}_6$  octahedron shares two opposed edges with two adjacent octahedra in order to form infinite chains that grow along the axis of a fiber; and two adjacent chains form double strands by the communing of edges comprising:

- preparing a  $\text{TiOCl}_2$  solution in dimethylformamide (DMF) by introducing  $\text{TiOCl}_2$  dissolved in a concentrated aqueous HCl solution into the DMF, in proportions such that the concentration ( $C_{\text{Ti}}$ ) of Ti atoms is less than 2M,
- heating the solution thus obtained to a temperature between room temperature and 90°C; and
- holding the solution at this temperature for a certain time.

5. (Currently Amended) A method of preparing a composition as claimed in claim ~~[[3]]~~ 4, comprising:

- preparing a  $\text{TiOCl}_2$  solution in dimethylformamide (DMF), by introducing  $\text{TiOCl}_2$  dissolved in a concentrated aqueous HCl solution into the DMF, in proportions such that the ~~concentration ( $C_{\text{Ti}}$ ) of Ti atoms~~ is less than 2M;
- heating the solution ~~thus obtained~~ to a temperature between room temperature and 90°C;
- holding the solution at this temperature for a certain time; and
- subjecting the composition obtained to UV irradiation in an inert atmosphere.

6. (Currently Amended) A method of preparing a composition as claimed in claim ~~[[3]]~~ 4, comprising reducing  $\text{TiOCl}_2$  in concentrated hydrochloric acid, using a species that is oxidizable at a potential of less than -0.05 V with respect to a standard hydrogen electrode.

7. (Currently Amended) The method as claimed in claim 6, wherein the oxidizable species is chosen from metals in oxidation state zero, such as Ni, Fe, Al, Cr, Zr, Ti, Nb, Cs, Rb, Na, K, Li, La and Ce, ionic compounds, in which the cation is chosen from  $\text{V}^{2+}$ ,  $\text{Ti}^{2+}$  and  $\text{Cr}^{2+}$ , and ionic compounds, in which the anion is chosen from  $\text{S}_2\text{O}_3^{2-}$ ,  $\text{H}^-$ , and  $\text{S}_2^{2-}$ .

8. (Previously Presented) The method as claimed in claim 7, wherein the metal is zinc.

9. (Currently Amended) The method as claimed in claim 6, wherein the method ~~furthermore~~ further includes a UV irradiation step in an inert atmosphere.

10. (Currently Amended) The method as claimed in claim 6, further comprising preparing a  $\text{TiOCl}_2$  solution in dimethylformamide (DMF) starting with a  $\text{TiOCl}_2$  solution in concentrated HCl, the ~~concentration ( $C_{\text{Ti}}$ ) of Ti atoms~~ of the solution being less than 2M, ~~in~~ adding the oxidizable species, ~~in~~ heating the solution to a temperature between room temperature and  $90^\circ\text{C}$  and ~~in~~ holding the solution at this temperature.

11. (Currently Amended) The method as claimed in claim 6, further comprising introducing the oxidizable species into a  $\text{TiOCl}_2$  solution in concentrated hydrochloric acid, in which  $C_{\text{Ti}}$  is less than 2M, and ~~in~~ maintaining the reaction mixture at a temperature between room temperature and  $90^\circ\text{C}$ .

12. (Previously Presented) The method as claimed in claim 4, wherein  $C_{\text{Ti}}$  is less than 1M in order to obtain a composition in sol form.

13. (Previously Presented) The method as claimed in claim 4, wherein  $C_{\text{Ti}}$  is greater than 1M in order to obtain a composition in gel form.

14. (Currently Amended) A photovoltaic cell comprising a photoanode and a photocathode in an electrolyte, wherein the photoanode comprises a conductive glass plate coated with a layer of a polymer composition as claimed in claim ~~[[1]]~~ 4 in

gel form, containing titanium of the polymer in  $Ti^{3+}$  form and the photocathode is a conductive glass plate coated with a layer of composition as claimed in claim ~~[[1]]~~ 4 in gel form containing titanium in  $Ti^{4+}$  form.

15. (Currently Amended) Solar protection glazing, wherein the solar protection glazing comprises a glass plate covered with a layer of ~~composition~~ a polymer composition produced by the method of claim 4 in the form of a gel.